



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/582,463	03/12/2007	Jun-Liang Hu	A4-340 US	1118
7590 Robert J. Zeidler MOLEX INCORPORATED 2222 Wellington Court Lisle, IL 60532			EXAMINER FLANIGAN, ALLEN J	
			ART UNIT 3744	PAPER NUMBER
			MAIL DATE 03/24/2010	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/582,463

**Applicant(s)**

HU, JUN-LIANG

**Examiner**

Allen J. Flanigan

**Art Unit**

3744

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SI/08)
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_

Claims 8 and 9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

There is no antecedent basis for “the central processing unit” of claim 8, nor for “the heat generating board” of claim 9.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 8-10, 14, and 16-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Chen et al.

Chen et al. show a heat sink assembly with a fin core (radiator) 2 having a through hole 13 that receives a columnar body 3 with a lower end having a flange (disc section 31) and a contact surface underneath this disc section for contacting a component. The upper end has a recess 321 therein that forms a slight hollow portion. Such a recessed portion, of course, inherently increases the heat radiating area of the top of the member 3 compared with a smooth top.

Regarding claims 8 and 9, the component is not considered to be a positively recited element of the claims (the claim is drawn to a heat conduction device “for dissipating heat from a heat generating component”, and thus the

component is recited in the preamble, prior to the word comprising, and is not considered to form part of the actual claimed structure).

Regarding claim 18, note lines 17-20 of column 3 of Chen et al.

Claims 12 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Meyerhoff et al.

Meyerhoff et al. is similar to Chen et al. in design (see Fig. 1 in particular) and discloses that member 22 is made of copper, and the fins 24 can be made of copper, copper alloy, aluminum, or aluminum alloy as well (top of column 3).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al. in view of Wang et al.

Wang et al. show a radially finned heat sink similar to Chen et al.'s design, which employs a thin fixing device 40 that engages in a groove 14 between the flanged member 12 of the heat sink and the fins. The device is employed to mount the heat sink to a chip socket. It would have been obvious to one of ordinary skill in the art to use such a mounting device to mount the heat sink of Chen et al. Regarding claim 6, note through holes 68 of Wang et

al.'s fixing device 40. Regarding claim 7, although Wang et al. show the device clamping to a component socket, it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to use it to mount a heat sink to a component that is surface-mounted on a circuit board by engaging the fixing device directly to the circuit board.

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al.

Note lines 26-29 of column 3 of Chen et al. A well known alternative to threaded joints in heat sink construction is the use of solder or braze alloys which are compatible with a wide variety of conductive metals. The Examiner hereby takes Official Notice of the well known nature of the use of solder or braze to join various heat sink components together, and it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to use such a means in place of the disclosed threaded coupling of Chen et al. See *In re Malcolm*, 54 U.S.P.Q. 235.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The remaining references of record show various finned heat sink designs.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen J. Flanigan whose telephone number is (571) 272-4910. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on (571) 272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Allen J. Flanigan/  
Primary Examiner, Art Unit 3744